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Lesson 2: Truth and Equations

Let's use equations to represent stories and see what it means to solve equations.

2.1: Three Letters

1. The equation $a + b = c$ could be true or false.
   a. If a is 3, b is 4, and c is 5, is the equation true or false?
   False $3+4=5 \rightarrow 7=5$ X
   b. Find new values of a, b, and c that make the equation true.
   $A=2$ $b=3$ $c=5$ $2+3=5$ ✓
   c. Find new values of a, b, and c that make the equation false.
   $A=7$ $b=1$ $c=5$ $7+1=5 \rightarrow 8=5$ X False

★rewrite equation with numbers replacing the letters.

multiply

2. The equation $x \cdot y = z$ could be true or false.
   a. If x is 3, y is 4, and z is 12, is the equation true or false?
   $3 \cdot 4 = 12$ $12=12$ ✓ True
   b. Find new values of x, y, and z that make the equation true.
   $x=4$ $y=3$ $z=12$ $4 \cdot 3 = 12$ ✓
   c. Find new values of x, y, and z that make the equation false.
   $x=5$ $y=3$ $z=12$ $5 \cdot 3 = 12 \rightarrow 15=12$ X False

2.2: Storytime

Here are three situations and six equations. Which equation best represents each situation? If you get stuck, draw a diagram.

1. After Elena ran 5 miles on Friday, she had run a total of 20 miles for the week. She ran x miles before Friday.

★ total means =

$+ \rightarrow -$
$\cdot \rightarrow \div$

$5 + x = 20$ (x=15) -5 -5

★To solve for "x", do opposite operation as the problem says

2. Andre's school has 20 clubs, which is five times as many as his cousin's school. His cousin's school has x clubs.

← multiplication

$\div \rightarrow \frac{5x}{5} = \frac{20}{5}$ $20 \div 5 = 4$ (x=4)

3. Jada volunteers at the animal shelter. She divided 5 cups of cat food equally to feed 20 cats. Each cat received x cups of food.

$20 \div 5 = 4$

plug "4" into x and see if it equals what it says it does. If it doesn't then it's false

$4 + 5 = 9$ X
$x + 5 = 20$

$x + 20 = 5$
$4 + 20 = 29$ X

$4 = 25$ X
$x = 20 + 5$

$5 \cdot 20 = x$
$5 \cdot 20 = 4$
$100 = 4$ X

$20 = 20$ ✓
$5 \cdot 4 = 20$
$5x = 20$

$20x = 5$
$20 \cdot 4 = 5$
$80 = 5$ X